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ABSTRACT

This book chapter outlines a number of key characteristics crucial to the integrity, utility, and efficiency of a behavioral assessment instrument for community living skills of people with developmental disabilities. In addition to basic psychometric considerations, the paper suggests that the functions of a behavioral assessment instrument could be maximized if the test: (1) is criterion-referenced, (2) can be used as a behavior rating and as a direct testing device, (3) provides objective information useful for programming, (4) is sufficiently wide in scope to meet screening needs, and (5) incorporates instructional aids for staff training. It is hoped that practitioners would view these characteristics as general guidelines for selecting the most appropriate and efficient assessment instrument, and that test developers would view these characteristics as potential features to be incorporated in the future design of behavioral assessment instruments. (27 references) (JDD)

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Chapter 9
Behavioral Assessment of Community Living Skills: Considerations for Practitioners[1]

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Given the large number of available assessment instruments that purport to assess behaviors under the rubric of adaptive behaviors, life skills, functional skills, and community living skills, practitioners are faced with an arduous task of selecting suitable instruments to meet their needs. Many instruments have serious limitations from a scientific as well as a practical standpoint. In this paper, we have outlined a number of key characteristics crucial to the integrity, utility, and efficiency of a behavioral assessment instrument. In addition to basic psychometric considerations, we have suggested that the functions of a behavioral assessment instrument could be maximized if the test (a) is criterion-referenced, (b) can be used as a behavior rating and as a direct testing device, (c) provides objective information useful for programming, (d) is sufficiently wide in scope to meet screening needs, and (e) incorporates instructional aids for staff training. Practitioners should view these characteristics as general guidelines for selecting the most appropriate and efficient assessment instrument to meet their needs. We also hope that test developers would view these characteristics as potential features to be incorporated in the future design of behavioral assessment instruments for community living skills of people with developmental disabilities.

Behavioral Assessment of Community Living Skills: Considerations for Practitioners

The deinstitutionalization movement across North America has led to an influx of persons with developmental disabilities being placed in a variety of community settings. For example, the number of persons with developmental disabilities served in the community in the Province of Ontario has increased sixfold over a 10-year span, from approximately 700 to 4,440 (Ontario Ministry of Community and Social Services, 1987). This trend is likely to continue given the planned phase-out of institutional placements. This movement toward community integration has created the need for the development and use of behavioral assessment instruments, specifically designed for evaluation of community living skills, as part of the habilitative

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process. Given the large number of available assessment instruments that purport to assess behaviors under the rubric of adaptive behaviors, life skills, functional skills, and community living skills, practitioners are faced with an arduous task of selecting suitable instruments to meet their needs.

The purpose of this chapter is to describe what we consider to be important and desirable characteristics of a behavioral assessment instrument. We hope that practitioners would consider these characteristics as general guidelines for selecting an efficient, valid, and useful instrument for assessing community living skills. Also, we hope that test developers would consider these characteristics as potential features to be incorporated in the future development of behavioral assessment instruments for community living skills for persons with developmental disabilities.

It is not the intent of this chapter to review specific assessment instruments for community living skills although some test instruments are used to illustrate the characteristics discussed throughout the chapter. It is also beyond the scope of this chapter to discuss the theoretical conceptualization of adaptive behaviors or community living skills (e.g., see Bruininks, Thurlow, & Gilman, 1987; McCarver & Campbell, 1987). The term *community living skills* is used here broadly to refer to skills that contribute to the independence of individuals living in community settings (e.g., domestic, travel, shopping, and work skills, etc.). Lastly, although this chapter is concerned with the design and use of behavioral assessment instruments, we do not imply that this is the only form of assessment that should be used.

Behavioral Assessment

The term *behavioral assessment* is used here to refer to the process of gathering information concerning the characteristics of behavior and the relations between behavior and the environment (Keefe, Kopel, & Gordon, 1978). Behavioral assessment can take many forms (e.g., see Cone & Hawkins, 1977; Hersen & Bellack, 1976; Mash & Terdal, 1981), but for the purpose of this chapter, we will focus on the evaluation of skill competence of individuals with developmental disabilities.

Behavioral assessment is an ongoing, integral component of the habilitative process from intake to discharge and follow-up, serving different functions at different stages (Cone & Hawkins, 1977; Hawkins, 1979). For example, Hawkins conceptualized the habilitative process as involving a number of stages in which behavioral assessment is often used to provide the necessary information to help with making various administrative and programming decisions. At intake, screening assessments may be conducted to determine if a referral is to be accepted or referred elsewhere. After a referral has been accepted, further assessments may be conducted to provide a general quantification of a client's strengths and weaknesses to identify appropriate community residential placement, vocational programs, and other services that may be offered to the client. Additional as-

sessments may be necessary to pinpoint specific targets and to design the appropriate training programs such as the development and implementation of individualized programs or education plans (IPPs or IEPs). Once training programs have been implemented, assessments are needed to monitor a client's progress to ensure that the desired behavior change is occurring and to make program modifications where appropriate. Lastly, follow-up assessments are conducted to determine if behavior change has been maintained.

Different instruments are often used at different stages of the habilitative process. Hawkins (1979) notes that instruments used for screening are typically broad in scope (i.e., contain many skill domains and test items) and low in fidelity (i.e., reliability and validity) due to their reliance on indirect testing methods (e.g., behavior rating based on recall). This may be a practical necessity because the tester is often faced with evaluating a large number of referrals in numerous skill domains. In contrast, instruments used during the later stages of the habilitative process, such as for pinpointing target behaviors, designing interventions, monitoring progress, and so forth, are narrower in scope and higher in fidelity, relying more on direct observation methods. During these latter stages, the tester (who is often also the trainer) tends to focus on a smaller number of clients and on a small number of objectives that are of importance to the clients.

While the appropriate instrument should always be used for the various functions, there are some potential practical problems associated with the use of multiple instruments at different stages of the habilitative process. Some common problems include overlap and duplication of efforts, increased staff time required to learn to use multiple instruments, and the lack of standardization across tests and the reporting of outcomes which ultimately lead to poor communication. These problems can be minimized by reducing the number of assessment instruments used. In fact, Hawkins (1979) has called for the development of assessment instruments that could be used across different stages of the habilitative process. We concur with Hawkins' views. Considering the needs of community agencies and the scarcity of resources, the availability of a multifunction instrument for assessing community living skills would be extremely valuable.

Can an assessment instrument serve multiple functions in the habilitative process? And what will such an instrument look like? The characteristics discussed below are important factors that will affect the utility of an instrument to serve multiple functions in the habilitative process.

Characteristics of a Multifunction Assessment Instrument

Objective Item Descriptions

Objective item description is crucial to the reliability of a behavioral assessment instrument. Unfortunately, test items are typically described in vague terms in most behavior rating scales.

(a) The client understands traffic regulations.

b) The client knows how to take a bus or taxi.

Walls, Werner, Bacon, and Zane (1977) recommend that an objective tem description should include: (a) the conditions for the behavior to ›ccur; (b) the behavior itself; and (c) the standard of performance. The conlitions for the behavior refers to the relevant environmental events that ›revail immediately prior to or during the performance of the behaviors. 'hese conditions may include the setting in which the behavior should be ested, materials that should be present, and the specific cues to be given. 'he behavior should be described in objective and observable terms such hat different testers independently observing the same performance are ikely to agree. The performance standard refers to the process and/or outome of the behavior such as how the behavior should be performed and vhat behavior product should be produced or achieved.

For example, the Objective Behavioral Assessment (OBA) of adaptive ehaviors (Hardy, Martin, Yu, Leader, & Quinn, 1981) uses a task analytic pproach, which is commonly found in assessment and training curricula e.g., Bowder, 1987; Popovich & Laham, 1981, 1982; Wehman, Renzaglia, & ates, 1985; Wilcox & Bellamy, 1987). In this approach, a skill item is task nalyzed into a number of steps with performance standards. We also dopted this approach in our present research on the development and alidation of the Essential Community Living Skills (ECLS) assessment sys-em. The ECLS is a criterion-referenced instrument in which each skill item s specified to include the test conditions and the behavior components, long with clear standards of performance. Two sample items on travel kills are shown below:

I.1. Crossing a Street at a Controlled Intersection

Condition: Observe skill at an intersection with traffic lights. For direct testing, walk and stay behind the client such that your behavior will not cue the client's behavior but you will be close enough to stop the client if necessary. If you have serious safety concerns (e.g., you may not be able to control or stop the client at the intersection) test the behavior in an analog setting first.

Component Skills Standards:

(a) Client walked to the intersection, stopped at the curb, and looked at the traffic lights.
(b) Client waited for traffic to stop before crossing.
(c) Client crossed the street quickly (without running) only when the walk signal appeared.
(d) Client stayed within the white lines during crossing.

I.6. Using Bus/Streetcar

Condition: Pass, token, ticket or proper denomination of fare can be used. For direct testing, the client can be requested to go to a specific destination accessible by public transit.

Component skills standards:

(a) Client waited at the nearest correct bus stop and got on the correct bus/streetcar.
(b) Client put fare (token or cash) into the fare box or showed bus pass to the driver.
(c) Client requested transfer if needed.
(d) Client sat or stood without bothering other riders.
(e) Client rang the bell just before the desired stop.
(f) Client got off at the correct stop.
(g) Client made the correct connection using the transfer and arrived at the correct destination.

Clear specifications of all three components (conditions, performance and standards) not only contribute to the reliability of the instrument; the task analyses can also be used for the development of teaching programs.

Reliability and Validity

While numerous behavior checklists and assessment scales for assessing adaptive behaviors are available, many were developed for individuals with severe and moderate developmental delays living in institutions and assess relatively basic skills (e.g., hygiene, dressing, feeding, etc.). Moreover, in their review of 166 behavior checklists, Walls et al. (1977) found that many instruments lacked objectivity, reliability, and validity. Their observations have been echoed by other researchers (e.g., Cone, 1977; Halpern, Irvin, & Landman, 1979; Livingston, 1977; Yu, Martin, Hardy, Leader, & Quinn, 1985). Unfortunately, in a recent survey of the literature (Yu & Feldman, 1988), we found many of the same shortcomings in the recent developments of behavior assessment instruments evaluating more complex community living skills with higher functioning clients.

Traditionally, test developers of behavioral assessment instruments have paid little attention to the psychometric properties of such instruments. However, Cone (1977) argued that basic psychometric considerations are just as valid for behavioral assessment instruments as they are for traditional tests. He proposed that test developers should demonstrate, at minimum, the generalizability of their assessment instruments across time (test-retest reliability) and testers (inter-tester reliability). Test-retest reliability examines the extent of agreement or correlation between the results obtained from two separate administrations of the same test to the same individuals at two different times, usually six to eight weeks apart. Inter-tester reliability examines the extent of agreement or correlation between the results obtained by two different testers who administered the same test to the same individuals. High agreement coefficients (e.g., 80% or higher) or high positive correlations (e.g., .6 or higher) are desirable.

Unlike traditional assessments of psychological constructs such as IQ tests, behavioral assessments of adaptive behaviors and community living skills are concerned with observable behaviors that are important to inde-

pendent functioning. These instruments rely largely on content validity (Salvia & Ysseldyke, 1985), sometimes called face validity in that the test items included are directly relevant to community living (e.g., taking public transportation, shopping, etc.). However, as discussed in a later section, if the instrument is to be used as a behavior rating device, criterion validity, or the extent to which the behavior rating correlates with direct observation of the behavior, must be demonstrated. With rare exceptions (e.g., Hardy et al., 1981), most behavior rating scales that we have encountered have not been validated against direct observations.

Norm- versus Criterion-referenced

In a norm-referenced assessment, a person's abilities are evaluated against his/her peers of similar age and background. The outcome of the assessment is usually expressed in terms of the individual's standing in relation to the average performance of this peer group. Norm-referenced assessments, such as IQ tests (e.g., WAIS) and the Adaptive Behavior Scale (Nihira, Foster, Shellhaas, & Leland, 1975) are widely used for classification purposes (Grossman, 1983) and may be necessary for administrative and funding reasons (Salvia & Ysseldyke, 1985). However, norm-referenced assessments do not provide useful information for instructional purposes.

A criterion-referenced instrument evaluates a person's abilities against a predefined standard of performance. This standard may include process (e.g., how a given skill should be performed) or outcome (e.g., behavior must be performed at a given level of accuracy, frequency, and/or duration, etc.) or both. The information provided by a criterion-referenced instrument can be useful for screening as well as program planning and designing training programs. Therefore, a criterion-referenced instrument is more likely to be useful across different stages of the habilitative process.

Direct Observation and Behavior Rating

Neither direct observation nor behavior rating is suited across all stages of the rehabilitative process, and each has its advantages and disadvantages. Behavior ratings by informants who are familiar with the client (e.g., staff, client's family members) can be completed much more quickly than can direct observation, making the former particularly attractive for use when a large number of clients have to be tested on a large number of test items (e.g., screening and general quantification of skills). However, behavior rating is usually less reliable when compared to direct observation (Halpern et al., 1979; Yu et al., 1985). Therefore, criterion validity, or the extent to which the behavior rating correlates with direct observation of the actual behaviors, must be demonstrated. For example, Yu et al. (1985) reported that the Objective Behavior Assessment (Hardy et al., 1981) which contains 208 skill items required approximately two hours for staff to complete through behavior rating, but approximately eight hours of face-to-face client contact to complete all items by direct observation. The authors further showed that 53%

of the ratings scores were in exact agreement with direct observation scores. 30% of the ratings scores disagreed with direct observation scores by one point on a four-point scale, and 17% of the rating scores deviated from direct observation scores by more than one point. Given these results, the authors recommended that the OBA behavior rating may be used for screening or for general quantification of skills where a one-point margin of error is acceptable. Similar validations are being conducted in our current research with the Essential Community Living Skills assessment instrument.

Direct observation provides accurate and reliable information and is particularly suited for pinpointing target behaviors for IPP planning, training and monitoring client progress. Although direct observation is more time-consuming than is behavior rating, this is offset by the fact that one is likely to be dealing with a small number of clients and target behaviors during the latter stages of the habilitative process. For example, one may be interested in teaching a list of five target behaviors within a particular skill domain. Therefore, direct testing can be conducted on those five target behaviors in order to design the training program, develop and implement the IPP or IEP, and monitor progress. Moreover, direct observation is more sensitive than is behavior rating in detecting sometimes gradual and small behavior changes during training and in generalization assessments.

Therefore, for an instrument to be maximally useful across different stages of the habilitative process, it should be designed and validated such that it can be used as a behavior rating scale as well as a direct observation instrument. Moreover, acceptable criterion validity of the behavior rating against direct observation of actual client performance must be demonstrated.

Scoring System

The scoring system should be easy to use, objective, well defined, and capable of providing as much information as possible about a client's skills. In some tests, skills are simply rated on a yes/no dichotomy (e.g., Cone, 1984) to indicate that the client is able or unable to perform a behavior independently. While this system is easy to use and may be adequate for screening purposes and for general quantification of strengths and weaknesses, the information gathered is not very useful for remediation.

A common alternative to the above system involves using a Likert-type scale anchored to some predefined concepts. For example, a skill item may be scored on a scale of 1 to 3 where 3 means "independent," 2 means "some assistance needed," and 1 means "considerable assistance required." While this system provides additional information, one must ensure that the concepts are meaningful and clearly defined. The meanings of "some," "considerable," and the types of "assistance" in the above example are ambiguous and will likely cause disagreements among testers or inconsistencies in scoring over time. The rating can be improved by defining the types and amounts of assistance required (e.g., one verbal prompt, gesture,

or model, etc.) for the client to perform the behavior correctly, based on the performance standards. Such a system not only improves reliability and consistency in scoring, it also alerts trainers to the type of prompts or assistance required by a client and a better estimate of the amount of training time required for a client to master the skill (e.g., Hardy et al., 1981; Yu & Feldman, 1988).

Scope

The scope or "band-width" (Hawkins, 1979) of an assessment instrument refers to the range of behavior domains and the number of skill items it covers. There are no rigid rules on the scope of an instrument other than the fact that it should contain relevant domains and skill samples that reflect what the test purports to measure. Comprehensiveness, however, must be tempered by practical concerns given that skills that may be considered under the rubric of community living can easily number in the thousands.

As mentioned earlier, instruments used for screening are generally broad in their coverage while diagnostic instruments, which are used to examine a particular problem or ability, are more circumscribed in scope. An instrument with a narrow band-width is not likely to be useful for screening and for general quantification of skills. On the other hand, selecting an instrument with the widest possible scope is pointless if the items are not relevant to your programming needs and the instrument can be used only as a rating device. This is a typical trade-off. Most broad-band instruments are behavior rating scales and are not validated for direct observation. Therefore, the scope of the instrument should be sufficiently wide to meet screening needs, although a balance must be struck between the comprehensiveness and relevance of the test items as well as the other characteristics discussed in this chapter.

In our work on the Essential Community Living Skill assessment, we attempted to strike such a balance by limiting the number of test items to a total of approximately 100, grouped under 10 skill domains. It is obvious that the ECLS skill domains and test items are by no means exhaustive. Rather, as the name of the test suggests, we included skills we felt to be the most essential to community living.

Instructional Aids

While most behavior checklists and assessment instruments are relatively straightforward to use, some can be rather complex. Learning to use an assessment instrument can be time-consuming for both the learner and the instructor, especially if multiple instruments are used. Given the abundance of research and innovations on the use of personalized programmed instruction (e.g., Keller, 1974; Keller & Sherman, 1982), sound pedagogical features (e.g., study exercises, quizzes, study questions and objectives, feedback, etc.) could be incorporated into the assessment manual to facilitate learning.

Therefore, the assessment manual could be an effective staff training tool as well as an effective assessment instrument for clients.

For example, Hardy et al. (1981) incorporated exercises and quizzes into the OBA instruction manual. Their field test showed that institutional staff and university students required an average of 1.5 hours to complete the exercises and, without further instructions, demonstrated acceptable reliability in conducting direct testing with clients having developmental delays (Yu et al., 1985). In a recent study, Smith, Schumann, and Yu (1990) adapted the OBA for use with psychogeriatric patients. The authors found that the psychiatric nurses required an average of 2.2 hours to complete the exercises. In addition, each staff member was given a half-hour, one-to-one session that included rehearsal and feedback. All staff showed dramatic improvements in their direct testing performance with their patients following this training.

These studies clearly show that behavioral assessment skills can be taught through programmed instruction with minimal face-to-face training. This approach represents a significant time and cost saving for community agencies in staff training. To the extent that some assessment skills (e.g., familiarity with objective skill descriptions and use of prompting and scoring systems) overlap with skills involved in program design and client training, effective staff training on conducting behavioral assessment may also reduce the amount of time required for staff to learn client training techniques.

Discussion

With the influx of individuals with developmental disabilities living in community settings, there is a need for reliable behavioral assessment instruments for assessing community living skills. In addition, there is a need for the development of practical assessment instruments that can be used at different stages of the habilitative process. Improved communication, reduced overlap and duplication of assessment, and substantial savings in staff time can be realized if multifunction instruments are developed.

In order to select or develop a behavioral assessment instrument that would be of maximum use in serving multiple assessment functions, we identified seven key characteristics that should be considered:

(a) Test items should be objectively described to include conditions for the behavior, the behavioral process, and the standard of performance.
(b) Basic psychometric properties (e.g., test-retest reliability and inter-tester reliability) should be demonstrated.
(c) The test should be criterion-referenced.
(d) The test should be validated as a behavior rating and as a direct testing device.
(e) The scoring system should be objective, well defined, and provide useful information for instructional planning.

(f) The scope should be sufficiently wide to meet screening needs.
(g) Instructional aids should be incorporated in the test manual to assist in staff training.

These characteristics are highly interrelated. At present, in the absence of an ideal instrument, trade-offs among the characteristics are inevitable. From a scientific standpoint, it is not sufficient simply to develop a list of behaviors for testing without validating the psychometric properties of the test instrument. From a pragmatic standpoint, with the increasing demand on service providers for quality assurance and program accountability and evaluation, behavioral assessment instruments must be designed to be responsive to the needs and available resources of the practitioners such that it is useful at as many stages of the habilitative process as possible and for as many functions as possible.

Note

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